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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,871	12/19/2001	Hyung Sung Jung	HI-0051	8800

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EXAMINER

LEE, ANDREW CHUNG CHEUNG

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,871

Applicant(s)

JUNG, HYUNG SUNG

Examiner

Andrew C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/26/2004

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the difference between the first input signal and the second signal is 1/2 chip" as disclosed in claim 4; "a first input signal and a second input signal and each signal has a gap of 1/2 PN chip" as disclosed in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Claim 15 is objected to because of the following informalities:
- The first line, "the method of claim 8" should be corrected as "the method of claim 9", since claim 15 is disclosed as a method that is dependent on claim 9.
- Appropriate correction is required.

Claim Objections

3. Claim 15 is objected to because of the following informalities: Claim 15 is a dependent claim that is a method, while claim 8 is also a dependent claim that is an apparatus which depends on independent claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 – 3, 5 – 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sih et al. (U.S. 6480529 B1).

Regarding claim 1, Sih et al. discloses the limitation of an apparatus for searching a pilot signal that is received through multiple paths in a CDMA mobile communication

system (Fig. 2, Abstract, lines 1 – 5), the apparatus comprising: a first shift register bank that sequentially stores PN codes (column 5, lines 1 – 3; column 12, claim 9, lines 8 – 9); a second shift register bank that sequentially stores input signals (Fig. 2, elements 400, 402; column 4, lines 58 – 63; column 12, claim 9, lines 2 – 7); a plurality of despreading means for despreading the input signals using the PN codes, wherein the plurality of despreading means despread the input signals in parallel to output despreading signals (Fig. 2, element 410; column 5, lines 1 – 16); a coherent accumulator that accumulates the despreading signals (Fig. 2, elements 430, 432; column 5, lines 51 – 53; lines 37 – 50); energy calculation means for yielding an energy value using accumulated signals from the coherent accumulator (Fig. 4, element 440, column 7, lines 1 – 5); and a non-coherent accumulator that determines an average value of the energy value for a prescribed time (Fig 2, element 450, column 7, lines 4 – 15).

Regarding claim 2, Sih et al. discloses the limitation of the apparatus of claimed comprising sorting means for sorting more than one average value of the energy value that are output whenever the input signals are sequentially shifted (column 9, lines 19 – 23).

Regarding claim 3, Sih et al. discloses the limitation of the apparatus of claimed wherein the PN codes and the input signals are stored as a separate I component and Q component, respectively (Fig. 2, elements PNI and PNQ; 400, 402; column 4, lines 58 – 63; column 5, lines 1 – 3).

Regarding claim 5, Sih et al. discloses the limitation of the apparatus of claimed wherein the first despreading means and the second despreading means each comprise a plurality of despreading device means that are equal in number to each of the PN codes

and the input signals (column 4, lines 48 – 60; column 5, lines 1 – 16).

Regarding claim 6, Sih et al. discloses the limitation of the apparatus of claimed wherein the plurality of despreading device means each are coupled to receive one of the PN codes and one of the input signals, respectively (column 5, lines 1 – 6).

Regarding claim 7, Sih et al. discloses the limitation of the apparatus of claimed wherein the coherent accumulator comprises a plurality of first adders for accumulating the despreading signals (Fig. 5, elements 421A, 423A); and a plurality of second adders for adding a first accumulation signal and a second accumulation signal, wherein the first accumulation is a signal determined by a first partial coherent accumulation for the PN codes and is stored, and wherein the second accumulation signal is determined by the partial coherent accumulation for next PN codes whenever corresponding next input signals are inputted (Fig. 5, elements 421B, 423B; column 8, lines 10 – 29).

Regarding claim 8, Sih et al. discloses the limitation of the apparatus of claimed wherein the second shift register bank shifts the stored input signals one at a time and outputs signals corresponding to PN offsets (column 5, lines 1 – 16; column 10, lines 56 – 62).

Regarding claim 9, Sih et al. discloses the limitation of a method for searching a pilot signal received using multiple paths in a CDMA mobile communication system (Fig. 2, Abstract, lines 1 – 5), the method comprising: storing PN codes sequentially; storing a set of input signals sequentially from a first input signal to a last input signal (column 10; lines 51 – 62; column 12, lines 22 - 26); despreading the set of input signals in parallel by using the PN codes; outputting an accumulation signal by accumulating despread signals

(column 10, lines 64 – 65; column 11, lines 1 – 17; column 12, lines 27 – 31); yielding an energy value of the accumulation signal and an average energy value of the energy value, wherein the average energy value is determined over a prescribed time (column 11, lines 18 – 30; column 12, lines 32 – 37); and determining average mean values corresponding to PN offsets after shifting the set of input signals and repeating the despreading to yielding steps (column 11, lines 31 – 33; column 12, lines 38 – 51).

Regarding claim 10, Sih et al. discloses the limitation of the method of claimed wherein the shifting shifts the set of input signals by one so that a penultimate input signal becomes the last input signal and an additional input signal becomes the first input signal, further comprising sorting the energy mean values corresponding to the PN offsets (column 6, lines 33 – 51).

Regarding claim 11, Sih et al. discloses the limitation of the method of claimed further comprising: storing in a buffer more than one first accumulation signal determined by partial coherent accumulation yielded where the input signals are shifted sequentially when a length of coherent accumulation is a multiple of a size of the coherent accumulation unit; and adding a corresponding more than one stored first accumulation signal and a corresponding more than one second accumulation signal yielded whenever a new partial coherent accumulation results are yielded (column 11, lines 1 – 23).

Regarding claim 12, Sih et al. discloses the limitation of the method of claimed wherein the addition is performed corresponding to an order of storing said more than one first accumulation signals in the buffer and an order of yielding said more than one second accumulation signals (column 11, lines 1 – 30).

Regarding claim 13, Sih et al. discloses the limitation of the method of claimed wherein the despreading is executed after a prescribed number of the PN codes and the input signals are stored (column 12, claim 11, lines 20 – 37).

Regarding claim 14, Sih et al. discloses the limitation of the method of claimed wherein a number of the despreading signals is determined by the coherent accumulation unit length (column 5, lines 51 – 61; lines 37 – 40).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Sih et al. (U.S. 6480529 B1) in view of Murai et al. (U.S. 6154487).

Regarding claim 4, Sih et al. discloses the limitation of the apparatus of claimed wherein the plurality of despreading means comprising: first despreading means for despreading a first input signal among the input signals using the PN codes (Fig. 2, elements 400; 410; column 5, lines 3 – 16); and second despreading means for despreading a second input signal among the input signals using the PN codes (Fig. 2, elements 402; 410; column 5, lines 3 – 29); Sih et al. do not disclose expressly wherein the difference between the first input signal and the second signal is 1/2 chip. Murai et al.

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disclose the limitation of wherein the difference between the first input signal and the second signal is $1/2$ chip (Abstract, lines 1 – 15; column 38, claim 1, lines 45 – 64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sih et al. to include wherein the difference between the first input signal and the second signal is $1/2$ chip such as that taught by Murai et al. in order to provide a method of receiving a spread-spectrum signal, for realizing miniaturization of the apparatus and power dissipation, without deteriorating the symbol (or data) demodulation characteristic, the synchronization acquisition characteristic or the synchronization tracking characteristic (as suggested by Murai et al., see column 15, lines 45 – 50).

Regarding claim 15, Sih et al. discloses the limitation of method for searching a pilot signal received using multiple paths in a CDMA mobile communication system (Fig. 2, Abstract, lines 1 – 5), Sih et al. do not disclose expressly the method of claimed wherein the input signals are divided into a first input signal and a second input signal and each signal has a gap of $1/2$ PN chip. Murai et al. disclose the limitation of the method of claimed wherein the input signals are divided into a first input signal and a second input signal and each signal has a gap of $1/2$ PN chip (Abstract, lines 1 – 15; column 38, claim 1, lines 45 – 64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sih et al. to include the method of claimed wherein the input signals are divided into a first input signal and a second input signal and each signal has a gap of $1/2$ PN chip such as that taught by Murai et al. in order to provide a method of receiving a spread-spectrum signal, for realizing miniaturization of the apparatus and power dissipation, without deteriorating the symbol (or data) demodulation characteristic, the

synchronization acquisition characteristic or the synchronization tracking characteristic (as suggested by Murai et al., see column15, lines 45 – 50).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACL

Oct 15, 2005


Ajit Patel
Primary Examiner